

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION
WASTE TREATMENT LAGOON
(no.)
CODE 359

SCOPE

The work shall consist of constructing a waste treatment lagoon and appurtenances to the lines, grades, and elevations as shown on the drawings or as staked in the field. The installation shall be in conformance with the construction plans and these specifications.

The owner or operator shall be responsible for securing necessary permits.

SITE PREPARATION**Clearing**

The foundation and lagoon area shall be cleared of all trees, stumps, roots, brush, boulders, sod and debris. Topsoil containing more than 10% organic matter shall be removed.

All material cleared from the area shall be disposed of at sites away from the work area. Disposal of cleared material in existing waterways or channels will not be permitted. Disposal of material shall be in accordance to state and county laws.

Foundation Preparation

All banks and sharp breaks shall be sloped to no steeper than 1:1. The surface of the foundation area will be thoroughly scarified a minimum of 1 foot before placement of embankment material.

EARTHWORK**Excavation**

The required excavation shall conform to the lines, grades and elevations shown on the plans as nearly as can be achieved by skillful operation of the excavating equipment.

Excavated materials, if suitable may be used to construct the embankment.

Embankment

Embankments shall conform to the lines, grades and elevations shown on the plans or as staked in the field.

Earthfill Embankments

The material placed in the fill shall be free of all sod, roots, stones over 6 inches in diameter, and other objectionable material. The placing and spreading of the fill material shall be started at the lowest point of the foundation, and the fill shall be brought up in approximately horizontal

layers not exceeding 8 inches in thickness before compaction. The construction equipment shall be operated over the area of each layer in a way that shall result in the required compaction for a watertight structure. Special equipment shall be used when the required compaction cannot be obtained.

The distribution and gradation of materials throughout the fill shall be such that there will be no lenses, pockets, or layers of material differing substantially in gradation or texture from the surrounding material. Where it is necessary to use materials of varying texture or gradation, the more impervious material shall be routed to the center portions of the fill.

The moisture content of fill material shall be such that the required degree of compaction can be obtained with the equipment used.

Rockfill Embankments (for lined lagoons)

The material placed in the fill shall be free of all sod, roots, trees or other objectionable material. The material shall be placed in approximately horizontal layers not more than two (2) feet in thickness. It shall be placed in a manner to provide a reasonably homogeneous stable fill that contains no segregated pockets of small fragments or large void spaces caused by bridging of the larger fragments.

Each layer of rockfill shall be compacted by at least 4 passes over the entire surface of the track of a crawler-type tractor.

Borrow Areas

All borrow areas outside the lagoon area shall be graded and left in such a manner that they are well drained and present a satisfactory esthetic appearance.

Spoil Disposal

The material excavated from the lagoon that is not used in any permanent fill shall be placed so that its weight will not endanger the stability of the lagoon side slopes and where it will not be washed back into the lagoon by rainfall. Material will be graded and spread to provide a pleasing appearance.

VEGETATIVE COVER

A protective cover of vegetation shall be established and maintained on all exposed surfaces of the embankment borrow areas and spoil disposal areas in accordance with the Hawaii standard and specification for Critical Area Planting (342). Hawaii standard and specification for Riparian Forest Buffer (391) may be used for the spoil disposal areas.

Seedbed preparation, seeding, fertilizing, and mulching shall be as specified on the plans.

FENCING

The lagoon area shall be fenced if necessary to protect vegetation and to provide protection to unauthorized persons or animals.

Fencing shall conform to the requirements of the Hawaii standard and specification for Fence (382).

STRUCTURES

Pipe Inlet and Outlet Installation

The pipe conduit shall be placed on a firm foundation to the lines and grades shown on the drawings. Unless otherwise approved, selected backfill materials shall be placed around the conduit in uniform layers and each layer shall be thoroughly compacted to obtain the equivalent compaction of the adjacent embankment. Caution shall be exercised to prevent pipe damage and uplifting when backfilling.

Concrete Structures

For small jobs the concrete mix will be: 1 sack cement (1 cubic foot), 2 cubic feet sand, 3-1/2 cubic feet gravel, and 6 gallons water. For larger jobs, concrete will be proportioned and mixed to produce a 28-day strength of 3,000 pounds per square inch, or greater, if specified on the plans. Concrete should be cured by keeping exposed surfaces wet for a minimum of 7 days or by applying an acceptable curing compound.

All concrete shall be vibrated or rodded in the forms. Concrete surfaces shall be finished to where no voids, honeycombed areas, rough edges or obstructions exist. Concrete shall not be dropped more than 5 feet vertically unless suitable equipment is used to prevent segregation.

Reinforcing steel is to be placed as indicated on the drawings and held securely in place during concrete placement. Reinforcing steel shall be free from rust, oil, grease, paint or other deleterious matter.

Subgrades and forms shall be installed to lines and grades shown on the drawings. Forms shall be thoroughly oiled or wetted and cleaned of debris prior to placement of concrete. The forms shall be mortar tight and unyielding as the concrete is placed.

The bond area between a floor slab and reinforced concrete wall must be thoroughly roughened and cleaned to insure a good bond.

Construction joints shall be provided as shown in the plans. Joints shall be thoroughly cleaned and laitance removed before a new pour is made. Each joint shall be wetted immediately before the placing of new concrete.

CONSTRUCTION OPERATIONS

Construction operations shall be carried out in such a manner and sequence that erosion and air and water pollution are minimized and held within legal limits. All work will be conducted in a skillful and workmanlike manner.

The completed job shall present a workmanlike appearance.

Appropriate safety measures, such as warning signs, rescue facilities, and fencing, shall be provided.

SAFETY

Landowners or operators, sponsoring organizations, and contractors shall be liable for damage to utilities and damage resulting from disruption of service caused by construction activities. The Natural Resources Conservation Service makes no representation on the existence or

nonexistence of any utilities. Absence of utilities on the drawings is not assurance that no utilities are present at the site.

It is the responsibility of the landowner or operator to determine if there are buried or overhead utilities in the vicinity of the proposed work. They should take proper procedures to insure that the utilities shall not be jeopardized and that equipment operators and others will not be injured during construction operations.